



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,265	09/30/2003	Jae Suk Sung	2336-206	2076
7590	01/25/2005		EXAMINER	
LOWE HAUPTMAN GILMAN & BERNER, LLP			LE, HOANGANH T	
1700 Diagonal Road, Suite 310			ART UNIT	PAPER NUMBER
Alexandria, VA 22314			2821	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H-1

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/673,265	SUNG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	HoangAnh T Le	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

#### A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 10 and 11 is/are allowed.
- 6) Claim(s) 1-7, 9 and 12 is/are rejected.
- 7) Claim(s) 8 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/30/03.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

1. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3,6, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Deguchi et al (the US Patent No. 6,677,905).

The Deguchi et al reference teaches in figure 1B a wireless Local Area Network (LAN) antenna, comprising: a radiation electrode 13 with a predetermined area for determining at least one transmission/reception frequency band of the antenna; a matching electrode 14 having at least one open stub, and a feeding electrode 12,15 having a feeding point 18 formed at an arbitrary position the feeding electrode to receive a current, with a first end connected to the radiation electrode and a second end connected to the matching electrode. Figure 1B shows at least one slot 13S for dividing the radiation electrode into two or more regions from current paths connected in parallel based on the feeding electrode. Wherein impedance matching thereof is adjusted by

Art Unit: 2821

adjusting a length of the open stub of the matching electrode (col. 4, lines 39, and col. 5, lines 25-40). The matching electrode having the open stub is formed in an inverted or reversed L shape (figure 1A). The matching electrode having the open stub is formed in a bar shape (figure 1A).

4. Claims 1,4,5,7, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen (the US Patent No. 6,717,548).

The Chen reference teaches in figure 3 a wireless Local Area Network (LAN) antenna, comprising: a radiation electrode 33 with a predetermined area for determining at least one transmission/reception frequency band of the antenna; a matching electrode 34 having at least one open stub, and a feeding electrode 38 having a feeding point 36 formed at an arbitrary position the feeding electrode to receive a current, with a first end connected to the radiation electrode and a second end connected to the matching electrode. The wireless LAN antenna is designed so that a resonance frequency and impedance matching thereof is adjusted by adjusting a position of the feeding point on the feeding electrode (col. 2, lines 49-50). Figure 3 shows the feeding electrode having the feeding point 36 and a ground point 35 thereon. The matching electrode is formed in a bar shape (figure 3).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoashi et al (the US Patent No. 6,768,460) in view of Chen (the US Patent No. 6,717,548).

The Hoashi et al reference teaches in figure 3 a wireless Local Area Network (LAN) card, comprising: a printed circuit board 31 for mounting a plurality of inherent semiconductor chips and devices to process RF LAN signals; an antenna support member fixed to a predetermined position of the printed circuit board being spaced apart from the printed circuit board by a certain height; and first and second antennas, the radiation electrodes of the first and second antennas being supported by the antenna support member to be perpendicular to each other (figure 3).

The Chen reference teaches in figure 3 an antenna comprising a radiation electrode 33 with a predetermined area for determining at least one transmission/reception frequency band of the antenna, a matching electrode 34 provided with at least one open stub, and a feeding electrode 38 provided with a first end connected to the radiation electrode, a second end connected to the matching electrode, and a feeding point 36 formed at an arbitrary position of the feeding electrode to receive a current, and wherein impedance matching of the antenna can be adjusted by adjusting the feeding point on the feeding electrode (col. 2, lines 49-50).

Since one of ordinary skill in the art would recognize the benefit of improving the performance of the antenna system, it would have been obvious to substitute the antennas of Hoashi et al with antennas as taught by Chen.

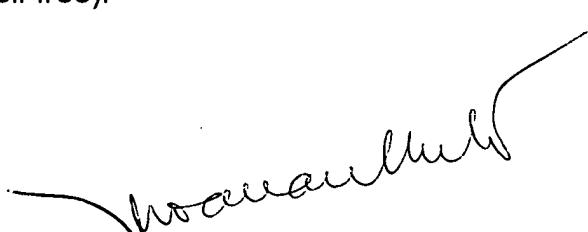
***Allowable Subject Matter***

7. Claims 10-11 are allowed.
8. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter: none of the cited art discloses the matching electrode having two inverted or reversed L-shaped open stubs connected in parallel to the feeding electrode, or a hexahedral dielectric block; a radiation electrode formed on a top surface of the dielectric block; a matching electrode formed on a front surface of the block, and a feeding electrode formed on back and bottom surfaces of the dielectric block, and provided with a feeding point on the feeding electrode formed on the bottom surface of the dielectric block, with a first end connected to the radiation electrode and a second end connected to the matching electrode.
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HoangAnh T Le whose telephone number is (571) 272-1823. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2821

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hoanganh Le  
Primary Examiner